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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,665	04/15/2005	Hirotooshi Kamata		1480

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SUITE 800  
WASHINGTON, DC 20037

EXAMINER
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BERMAN, SUSAN W

ART UNIT	PAPER NUMBER
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1711

MAIL DATE	DELIVERY MODE
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06/29/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/531,665

**Applicant(s)**

KAMATA ET AL.

**Examiner**

/Susan W. Berman/

**Art Unit**

1711

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/05, 01/06</u> . | 6) <input type="checkbox"/> Other: ____.  |

***Information Disclosure Statement***

The disclosures of EP 1,031,579, EP 0,902,327, EP 1,048,700 and the Abstract of JP 2002-139883 cited on the IDS filed 04-15-2005 have not been considered since no copies were received.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 4 recites a “composition” containing the hexaarylbiimidazole compound alone. At least one additional component must be recited in order to define a “composition”. The claim, as written, is drawn to a compound of claim 1 and fails to further limit claim 1. In claim 5 it is not clear what compounds are encompassed by the terms “benzophenone-based”, “thioxanthone-based” or “ketocoumarin-based”. Does applicant intend to claim benzophenone, thioxanthone or ketocoumarin compounds? Does applicant intend to claim kinds of derivatives of benzophenone, thioxanthone or ketocoumarins? If so, the kinds of compounds should be clearly set forth by name, structure or method for preparation.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-8 are rejected under 35 U.S.C. 102(a) as being anticipated by WO 03/072614.

WO '614 discloses a photopolymerization initiator compositions comprising a biimidazole initiator (claim 14). Three specific examples of biimidazoles of the instantly claimed formula wherein R<sub>1</sub> is chloro and R<sub>2</sub> is methyl, ethyl or butyl are shown on page 20, lines 23-28. The compositions disclosed can also contain thiol compounds, thioxanthenes, benzophenones and/or ethylenically unsaturated compounds. Applicant has not provided a certified translation of the claimed priority documents JP 2002-300446 or US 60/419,093 to establish a priority date before April 29, 2004, which is the publication date of WO 2004/035546 A1 in English.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto et al (5,385,807). Okamoto et al disclose photopolymerizable compositions comprising ethylenically unsaturated compounds, a specified methane compound, and at least one of various compounds for component (iii). Component (iii) can be a hexaarylbiimidazole compound. See

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the Abstract and column 48, lines 53-64. "HABI" is specifically disclosed in column 48, lines 54-55. Thiols are also taught as component (iii).

It would have been obvious to one skilled in the art at the time of the invention to select a hexaarylbiimidazole as component (iii) in the compositions taught by Okamoto et al. With respect to claim 2, It would have been obvious to one skilled in the art at the time of the invention to provide a hexaarylbiimidazole of the structure set forth because it is an obvious homolog of the hexaarylbiimidazole "HABI" specifically taught by Okamoto et al. One skilled in the art at the time of the invention would have immediately envisioned the compound of claim 2 from the structure of the compound of claim 1. With respect to claim 6, It would have been obvious to one skilled in the art at the time of the invention to employ a mixture of hexaarylbiimidazole and a thiol compound as component (iii) in the disclosed compositions. One skilled in the art at the time of the invention would have been motivated by a reasonable expectation of providing a photopolymerizable compositions having high sensitivity to actinic light from ultraviolet to visible light.

Claims 1-5, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dueber et al (6,218,074). Dueber et al disclose compositions comprising ethylenically unsaturated monomers and a photoinitiator system. The photoinitiator system preferably includes 2,4,5-triphenyl-imidazolyl dimmers, such as "HABI" and 2-o-chlorosubstituted hexaphenyl biimidazoles wherein the phenyl rings are substituted with chloro, methyl or methoxy (column 12, lines 4-13). Dueber et al also teach particularly preferred photoinitiators include

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benzophenones, thioxanthenes, and hexaarylbiimidizoles (column 12, lines 27-33). With respect to claims 5 and 6, Examples 1-6 employ a combination of HABI and a benzophenone.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to /Susan W. Berman/ whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SB  
6/19/2007

/Susan W Berman/  
Primary Examiner  
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